REMARKS

Early and favorable acceptance of this non-provisional utility patent application is respectfully requested.

Applicants have enclosed herewith a check in the amount of $309.00 to cover the fees associated with the addition of new Claims 127-137. Although no additional fees are believed due, the Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 02-0384 of Baker Botts L.L.P.

If the Examiner feels that a telephone conference or an interview would advance prosecution of this application in any manner, the undersigned attorney for Applicant stands ready to conduct such a conference at the convenience of the Examiner.

Respectfully submitted,

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APPENDIX A
MARKED-UP VERSION OF AMENDED CLAIMS

1. **(Amended)** An optical amplifier comprising:

a gain medium operable to receive a plurality of signals each comprising a center wavelength; and

a noise **[figure]** **property** associated with at least a portion of the amplifier and varying as a function of wavelength;

wherein at least two of the plurality of signals comprise **[a]** launch power**s** that **[is]** **are** a function of a magnitude of the noise **[figure]** **property** measured at or near the center wavelength of that signal**; and**

wherein launch powers of the plurality of signals primarily decrease with increasing center wavelengths of the plurality of signals.

6. **(Amended)** The optical amplifier of Claim 1, wherein the noise **[figure]** **property** comprises a noise figure for the entire amplifier.

7. **(Amended)** The optical amplifier of Claim 1, wherein the noise **[figure]** **property** comprises a noise figure for one stage of the amplifier.

9. **(Amended)** The optical amplifier of Claim 1, wherein each of the at least two of the plurality of signals provides an approximately equal signal to noise ratio at an output from the portion of the amplifier associated with the noise **[figure]** **property**.

12. **(Amended)** The optical amplifier of Claim 1, wherein the at least two of the plurality of signals each comprise a launch power that is a function of a magnitude of the noise **[figure]** **property** measured within one nanometer of the center wavelength of that signal.

13. **(Amended)** The optical amplifier of Claim 1, wherein the at least two of the plurality of signals each comprise a launch power that is proportional to **[the]** **a** noise figure of the amplifier at or near the center wavelength of that signal.

16. **(Amended)** The optical amplifier of Claim 1, wherein the at least two of the plurality of signals each comprise a launch power that is inversely proportional to a signal to noise ratio at or near the center wavelength of that signal that would arise if all of the plurality of **[optical]** signals comprised the same launch power.

43. **(Amended)** An optical amplifier comprising:

an input operable to receive a plurality of signals each comprising a center wavelength, wherein at least two of the plurality of signals comprise different launch powers;

a pump operable to generate a pump signal; **and**

a gain medium operable to receive the plurality of signals and the pump signal and to facilitate amplification of at least some of the plurality of signals; **[and**

an output operable to communicate amplified versions of the plurality of signals;]

wherein a signal to noise ratio measured at **[the]** **an** output of the amplifier varies by no more than 2.5 decibels over a bandwidth of at least 40 nanometers for at least a majority of signals output from the amplifier**; and**

wherein launch powers of the plurality of signals primarily decrease with increasing center wavelengths of the plurality of signals.

62. **(Amended)** The optical amplifier of Claim 43, wherein the signal to noise ratio varies by no more than one decibel for at least a majority of **[optical]** signals output from the amplifier.

63. **(Amended)** The optical amplifier of Claim 43, wherein the signal to noise ratio varies by no more than 0.1 decibels for at least a majority of **[optical]** signals output from the amplifier.

64. **(Amended)** An optical communication system comprising:

an input terminal comprising a plurality of optical transmitters each operable to output one of a plurality of signals each comprising a center wavelength;

a plurality of spans of optical medium coupled to the input terminal and operable to facilitate communication of the plurality of signals; and

a plurality of in-line amplifiers each coupled to at least one of the plurality of spans of optical medium;

wherein at least two of the plurality of signals comprise **[a]** launch powers that **[is]** **are** a function of a noise **[figure]** **property** associated with at least a portion of the system**;** **and**

wherein launch powers of the plurality of signals launched from the plurality of optical transmitters primarily decrease with increasing center wavelengths of the plurality of signals.

86. **(Amended)** The optical communication system of Claim 64, wherein the plurality of **[optical]** signals comprises:

a first group of optical signals having launch powers determined with reference to the noise figure to result in a first signal to noise ratio; and

a second group of optical signals having launch powers determined with reference to the noise figure to result in a second signal to noise ratio different than the first signal to noise ratio.

87. **(Amended)** A method of communicating signals, comprising:

communicating a plurality of signals each having a center wavelength to an optical link comprising a plurality of spans of fiber; and

amplifying the plurality of signals to at least partially compensate for losses in one or more of the plurality of spans of fiber;

wherein signals output from the optical link experience a noise **[figure]** **property** varying as a function of wavelength, and wherein at least two of the signals input to the optical link comprise **[a]** launch power**s** that **[is]** **are** a function of the noise **[figure]** **property** measured at or near the center wavelength of that signal**; and**

wherein launch powers of the plurality of signals primarily decrease with increasing center wavelengths of the plurality of signals.

100. **(Amended)** The method of Claim 87, wherein the launch power of the at least two of the signals input to the optical link comprise a function of the center wavelength of the signal and **[the]** **a** noise figure measured at or near the signal's center wavelength.

101. **(Amended)** The method of Claim 87, wherein the at least two of the plurality of signals each comprise a launch power that is a function of a magnitude of **[the]** **a** noise figure measured within one nanometer of the center wavelength of that signal.

102. **(Amended)** The method of Claim 87, wherein the at least two of the plurality of signals each comprise a launch power that is proportional to **[the]** **a** noise figure of the amplifier at or near the center wavelength of that signal.

105. **(Amended)** The method of Claim 87, wherein the at least two of the plurality of signals each comprise a launch power that is inversely proportional to a signal to noise ratio at or near the center wavelength of that signal that would arise if all of the plurality of **[optical]** signals comprised the same launch power.

108. **(Amended)** The method of Claim 87, wherein a signal to noise ratio associated with the plurality of signals measured at the output from the optical link varies by no more than 0.1 decibels for at least a majority of **[optical]** signals output from the optical link.

109. **(Amended)** A method of communicating signals, comprising:

(a) adjusting launch powers of a plurality of signals input to an optical link based at least in part on a noise **[figure]** **property** associated with at least a portion of the optical link **for at least a portion of the plurality of signals**;

(b) adjusting a pump power of an amplifier in the optical link to give a desired gain spectrum in light of the adjusted launch powers; and

(c) repeating steps (a) and (b) until a signal to noise ratio at an output from the optical link varies by no more than a threshold amount for at least a majority of signals output from the optical link;

wherein launch powers of the plurality of signals primarily decrease with increasing center wavelengths of the plurality of signals.

110. **(Amended)** The method of Claim 109, wherein adjusting the launch power of a plurality of signals comprises adjusting the launch power as a function of the center wavelength of the signal and **[the]** **a** noise figure measured at or near the signal's center wavelength.

117. **(Amended)** The method of Claim 109, further comprising:

monitoring **[the]** **a** noise **[figure]** **property** of at least a portion of the optical link during operation;

adjusting the launch powers of a plurality of signals input to the optical link based at least in part on the noise **[figure]** **property** monitored during operation.

118. **(Amended)** The method of Claim 117, wherein monitoring the noise **[figure]** **property** comprises determining the noise **[figure]** **property** on a periodic basis.

119. **(Amended)** A method of communicating signals, comprising:

setting launch powers of a plurality of signals at **[an]** **one or more** initial launch power level**s**;

setting a pump power of an amplifier in an optical link receiving the plurality of signals at an initial pump power level to give a desired gain spectrum at the output of the amplifier;

adjusting the launch powers **of at least some of the plurality of signals** based at least in part on a noise **[figure]** **property** associated with at least a portion of the optical link **and at least some of the plurality of signals**; and

adjusting the pump power of the amplifier to retain the desired gain spectrum in light of the adjustment to the launch power**s**;

wherein launch powers of the plurality of signals primarily decrease with increasing center wavelengths of the plurality of signals.